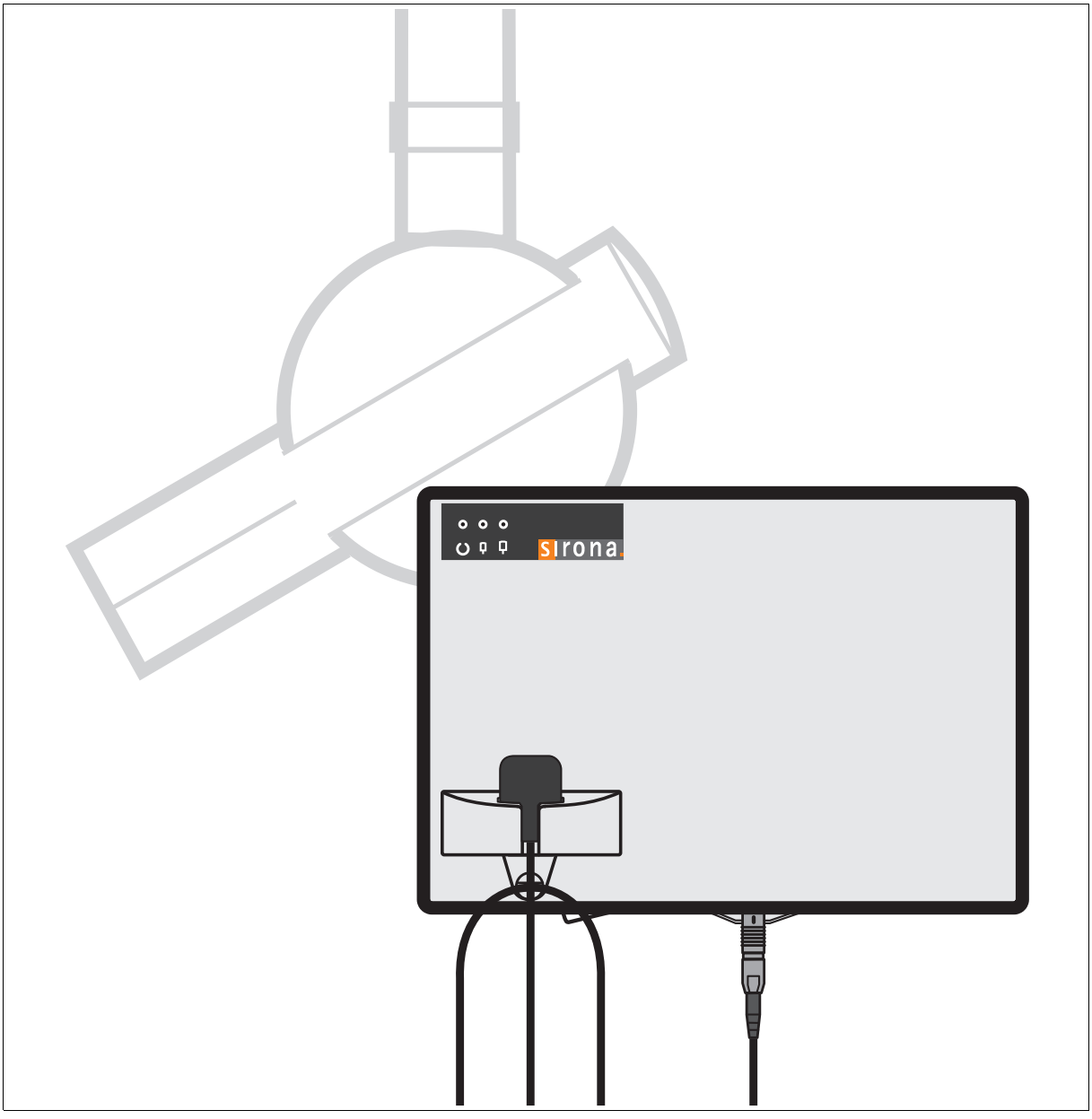
sirona
The Dental Company

SIDEXIS – Intraoral

Operating Instructions

English



Dear Customer

Thank you for purchasing your new Intraoral X-ray product from the **SIDEXIS** family.

This product enables the digital image acquisition of intraoral X-rays.

For this unit we have also provided the **technical documentation**.

Keep this documentation nearby for quick and easy reference (in the Federal Republic of Germany in the X-ray System book).

In order to protect your warranty rights, please fill out the **Installation Report / Warranty Passport** provided, together with the technician, immediately after installation of the system.

These Operating Instructions cover the operation of the Wall Model X-ray Box, the Universal sensor and the Full Size sensor.

Read the Operating Instructions to familiarize yourself with the product before taking X-rays on the patient. Be sure to observe the currently valid **Radiation Protection Guidelines** and the **Safety Notes** in these Operating Instructions.

These Operating Instructions assume a thorough familiarity with the **SIDEXIS** software.

In the Federal Republic of Germany, the system integrator is required to fill out the enclosed declaration of conformity in accordance with the Medical Device Directive.

Your **SIDEXIS** Team

Maintenance

To ensure the safety of the patient, the operators and third parties, equipment inspections and maintenance work must be carried out at specified intervals in order to guarantee the operational safety and functional reliability of your product.

It is the responsibility of the operator to ensure that the inspections and maintenance work are carried out.

In the event that the operator fails to fulfil the obligation to carry out inspections and maintenance work or ignores error messages, Sirona Dental Systems GmbH or their contracted dealer cannot assume liability for any damage attributable to this.

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1 Warning and safety information

1.1 General safety information

Intended use

This unit is not to be operated in areas where an explosion hazard exists.

Symbols used

Observe accompanying documents (on name plate)

Maintenance and repair

As manufacturers of electromedical equipment we can assume responsibility for the safety properties of the system in particular only if maintenance and repairs on the system are performed by us or by agencies we have expressly authorized to perform these and if components affecting safe operation of the system are replaced by original spare parts in case of failure.

We suggest that you request a certificate, showing the nature and extent of the work performed, from those who carry out such work, and specify that the certificate show any changes in rated parameters or working ranges, as well as the date, the name of the firm and a signature.

For product safety reasons this product may be operated only with original Sirona accessories or accessories of third parties expressly approved by Sirona. The user assumes the risk for the use of nonapproved accessories.

ATTENTION! If extensions are made to the PC, this can impair the functional reliability of the system (e.g. patient safety and EMC compatibility). The person who makes the extension which is not expressly approved by Sirona undertakes the warranty for the functional reliability of the system.

Combination with other equipment

Permissible combinations are defined by the system administrator in the declaration of conformity.

The declaration of conformity is included with the technical documents.

Electromagnetic compatibility (EMC)

The SIDEXIS – Intraoral complies with the requirements of IEC 60601-1-2:2001.

Medical electrical devices are subject to special precautionary measures regarding EMC. They must be installed and operated as specified in the document "Installation Requirements".

Portable and mobile HF communication devices can influence medical electrical equipment. The use of mobile telephones in the practice or hospital area therefore must be prohibited.

Please also observe the ESD protective measures in Chapter 1.2.

Allocation of acquisition system to patient

In the course of the dental practice procedure, in order to guarantee reliable assignment of the X-ray exposures to the patient data stored by SIDEXIS it must be guaranteed that the unequivocal assignment of the acquisition system to the examined patient is assured!

Hygiene information

The protective covers must be exchanged for each new patient and the sterilizable accessories must be sterilized to prevent any transmission of infective agents which might cause serious illnesses.

Suitable hygienic measures must be taken to prevent cross contamination among patients, users and other persons.

Identification of warning and safety information

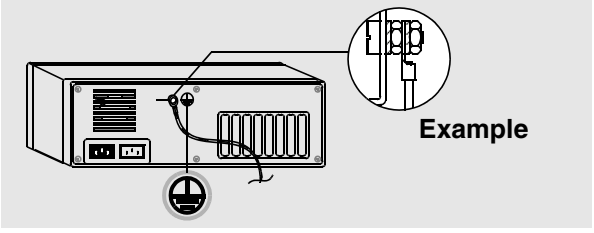
To avoid personal injury and material damage, also observe the warning and safety instructions given in these Operating Instructions. These are specially identified with ATTENTION.

Interference with electronic devices worn on the body of the patient

To avoid failures of electronic devices and data memories, such as radio-controlled clocks and telephone cards, these must be removed before the X-ray exposure.

Maintenance performed by the operator

If a second protective ground wire connection is specified in the installation instructions to be used, the operator must ensure that no changes are made to the second protective ground wire connection, as shown in the picture.

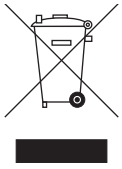


No further maintenance measures are required on the part of the operator.
The operator must ensure that all components are in undamaged condition (cables, sensors, housing parts).

Disposal

It generally applies that any disposal of this product must comply with the relevant national regulations. Please observe the regulations applicable in your country.

Within the European Economic Community, Council Directive 2002/96/EU (WEEE) requires environmentally sound recycling/disposal of electrical and electronic devices.



Your product is marked with the adjacent symbol. Disposal of your product with domestic refuse is not compatible with the objectives of environmentally sound recycling/disposal.
The black bar underneath the "garbage can" symbol means that it was put into circulation after Aug. 13, 2005. (see EN 50419:2005)

Please note that this product is subject to Council Directive 2002/96/EU (WEEE) and the applicable national law of your country and must be recycled or disposed of in an environmentally sound manner.

The X-ray tube assembly of this product contains a tube with a potential implosion hazard, a small amount of beryllium, a lead lining and mineral oil.

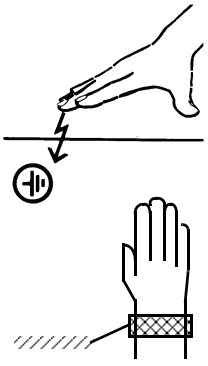
Please contact your dealer if final disposal of your product is required.

1.2 ESD protective measures

ESD is the abbreviation for **E**lectro**S**tatic **D**ischarge.

CAUTION

Connector pins or sockets bearing ESD warning labels must not be contacted or interconnected ***without ESD protective measures****.*



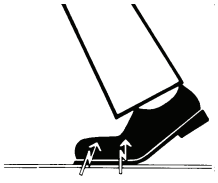
ESD protective measures include:

- Procedures for preventing electrostatic charges (e.g. via air conditioning, air moistening, conductive floor coverings and nonsynthetic clothing)
- Discharging the electrostatic charges of your own body on the frame of the UNIT, the protective ground wire or large metallic objects
- Connecting yourself to ground using a wrist band.

We therefore recommend that all persons working with this system be instructed on the significance of this warning label. Furthermore, they also should receive training in the physics of electrostatic discharges which can occur in the practice and the destruction of electronic components which may result if such components are contacted by electrostatically charged USERS.

The content of this training is specified in Chapter 1.3.

1.3 Concerning the physics of electrostatic charges



ESD is the abbreviation for **E**lectro**S**tatic **D**ischarge. Electrostatic discharge must be preceded by electrostatic charging.

Static electric charges generally occur whenever two bodies are rubbed against each other, e.g. when walking (shoe soles against the floor) or driving a car (tires against the street pavement). The amount of the charge depends on several factors:

I.e. the charge is higher with a low air humidity than with a high air humidity and higher with synthetic materials than with natural materials (clothing, floor coverings).

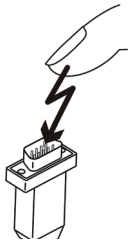
The following rule of thumb can be applied to gain an overview of the compensating voltages resulting from an electrostatic discharge.

An electrostatic discharge is:

- perceptible at 3000V or higher
- audible at 5000V or higher (cracking, crackling)
- visible at 10,000V or higher (arc-over)

1 nanosecond = 1 / 1,000,000,000 second = 1 billionth of a second

The compensating currents resulting from these discharges have a magnitude of 10 amperes. They are not hazardous for humans because they last for only several nanoseconds.



Voltage differences exceeding 30,000 volts per centimenter may lead to a charge compensation (electrostatic discharge, lightning, arc-over).

Integrated circuits (logical circuits and microprocessors) are used in order to enable a wide variety of functions in a dental/X-ray/CEREC system. The circuits must be miniaturized to a very high degree in order to include as many functions as possible on these chips. This leads to layer thicknesses with a magnitude of several ten thousandths of a millimeter.

It is obvious that integrated circuits which are connected to plugs leading outside of the unit via cables are sensitive to electrostatic discharge. Even voltages which are imperceptible to the user can cause breakdown of the layers, thus leading to a discharge current which melts the chip in the affected areas. Damage to individual integrated circuits may cause malfunction or failure of the system.

To prevent this from happening, the ESD warning label next to the plug warns of this hazard.

2 Technical data

1. General

The Digital Intraoral X-ray system, type D 3334, was tested by the VDE test and certification institute according to EN 60 601–1:1996 in conjunction with EN 60 601–1–1: 9-1994; A1: 1996. It fulfils the requirements specified therein.

Patent
This product is covered by US Patent Numbers US 5,513,252. Additional patents are pending.

Original language of the present document:	German
Reg. No.: China	SFDA (I) 20052302655
Product Standard No.:	YZB / GEM 1866 - 2005

CE

This product bears a CE marking, documenting its compliance with the provisions of Council Di › 93/42/EEC of June 14, 1993 concerning medical devices.

2. Sensors

Cable length:	3 m
Degree of protection against electrical shock: :	Type BF
Physical pixel size:	19.5 µm (pixel binning to 39 µm)
Active area:	26 x 34 mm Full Size 20 x 30 mm Universal Size
Outer dimensions:	30,93 x 40,96 x 7,0 mm – Full Size 25,6 x 36,9 x 6,8 mm – Universal
Ambient temperature:	0 – 40°C
Storage temperature:	–10°C to +70°C; on dispatch in original packaging –40°C to +70°C for max. 48 h

3. Image acquisition

Wall model X-ray box:

US-version: Worldwide version:	120 V, 50 / 60 Hz max. 40 W 100 – 240 V, 50 / 60 Hz max. 40 W
Type of protection against electrical shock:	unit of Protection Class **I**
Degree of protection against penetration of water:	normal unit (without protection against penetration of water)
Operating mode:	continuous operation

4. Minimum requirements for the PC systems

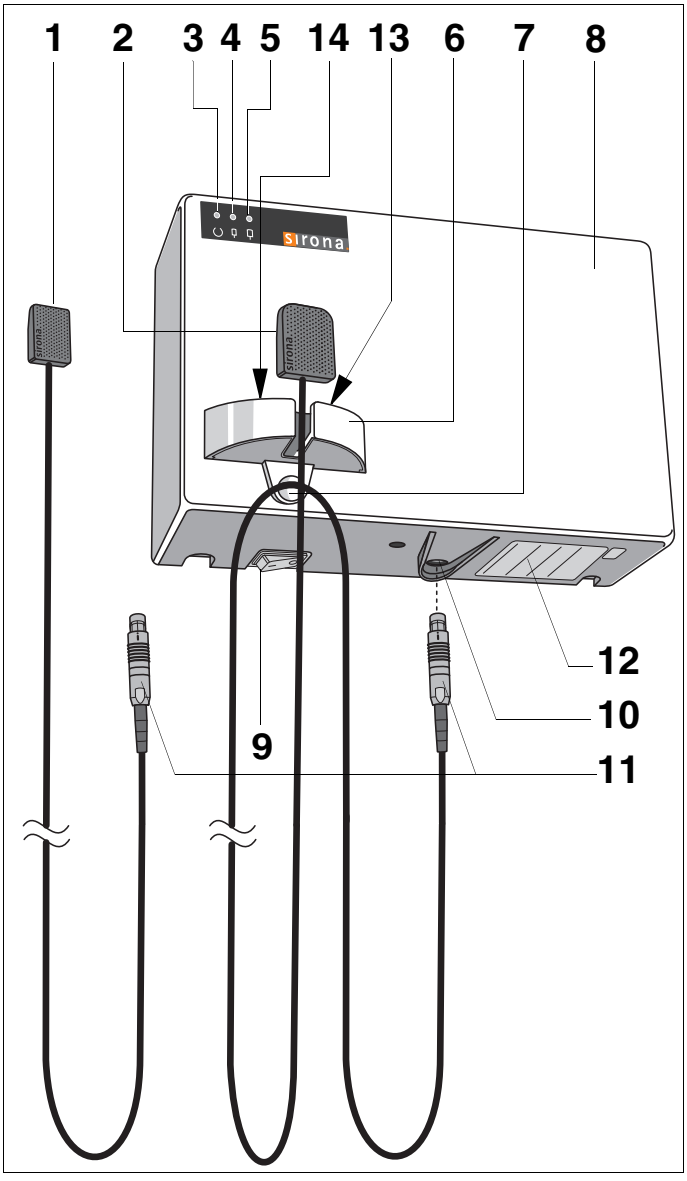
Hard disk:	> 2 GByte / database > 50 MByte / SIDEXIS installation
RAM:	at least 64 MB
Drives:	CD-ROM 3.5" diskette (one per system / network) MOD drive min. 640 MByte (one per system / network)
Operating system:	Windows 98 Windows NT 4.0 / Service Pack $\geq$ 5
Graphics system:	Resolution at least 1024 x 768 pixels, color depth at least 8 bits
Network:	10 / 100 MBit Ethernet

5. Requirement for the intraoral X-ray tube assembly:

Multipulse units, mAs product:	0.14 – 1.4 mAs, at 60 – 70 kV and 8" Tube
These data apply correspondingly for single-pulse units or other cone lengths.	

3 Operating and display elements

3.1 Wall model X-ray box



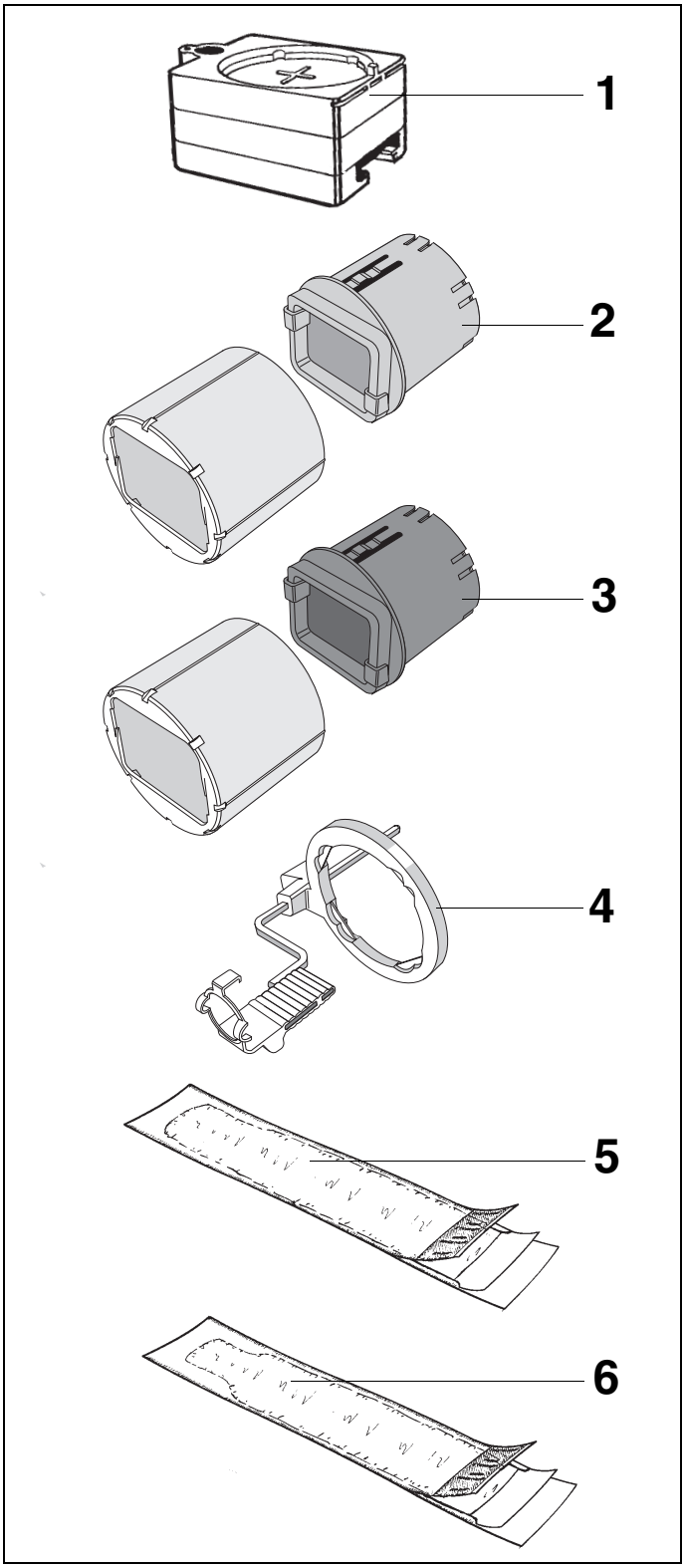
1. **Universal sensor**, 20 x 30 mm active area, plug marked gray
2. **Full Size sensor**, 26 x 34 mm active area, plug marked blue
3. Signal LED for readiness to operate
4. Signal LED for Universal sensor
5. Signal LED for Full Size sensor
6. Holder for sensor, removable for cleaning
7. Suspension device for excess sensor cable length
8. X-ray box for image acquisition as wall model
9. Main ON/OFF switch
10. Socket for sensor plug
11. Round plug on the relevant sensor lead
12. Name plate
13. Symbol:

Application component of type BF

14. Symbol:

ATTENTION! Please read accompanying papers.

4 Accessories



1. Test phantom for constancy test
   REF. 51 68 062

2. X-ray field limitation **blue** with twist grip
   for Full Size sensor
   REF. 46 81 974

3. X-ray field limitation **black** with twist grip
   for Universal sensor
   REF. 60 00 579

4. Sensor holder set with sight rings and guide rods
   from DENTSPLY RINN
   REF. 58 58 522

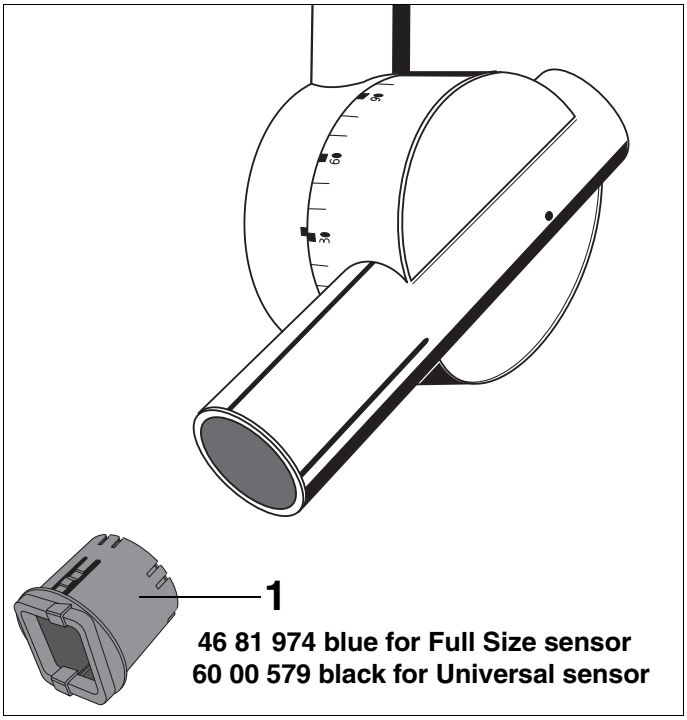
5. Hygiene protection for Full Size sensor
   500 pcs, REF. 51 69 110

6. Hygiene protection for Universal sensor
   500 pcs, REF. 58 06 497

NOTE

Not all accessories described here are included in the scope of supply.

5 Collimation



Check whether the diaphragm provided is inserted in the HELIODENT cone.

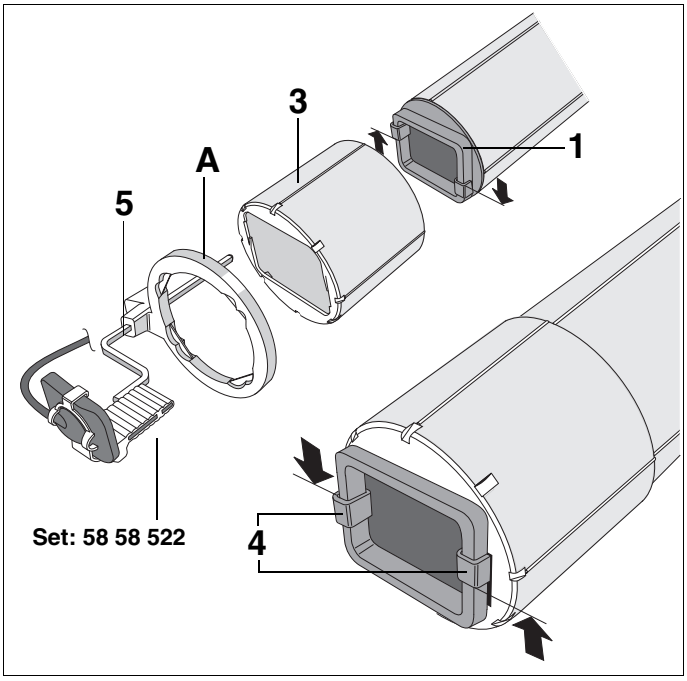
Insert the corresponding diaphragm with twist grip depending on the sensor being used, i.e. blue for **Full Size sensor and black for Universal sensor**.

Adjust the window of the collimator according to the alignment of the sensor.

Use of the collimator in the cone of the HELIODENT gives a rectangular radiation area adapted to the size of the sensor.

NOTE

Use the collimator only with a sensor holder!



HELIODENT DS / HELIODENT MD

Diaphragm (1), blue, Order No: 46 81 974
or black, Order No.: 60 00 579 for digital X-ray sensors.

Push the twist grip (3) over the collimator (1) and bring the snap hooks (4) into the mid position.

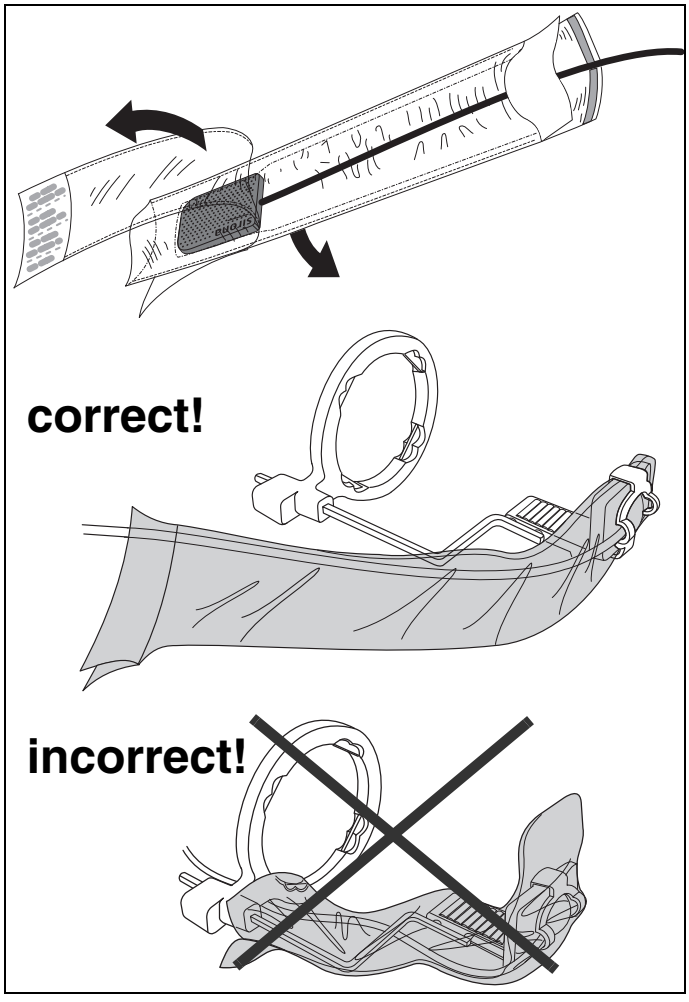
The sight ring A must be fitted with its recesses on the four corners of the collimator (1).

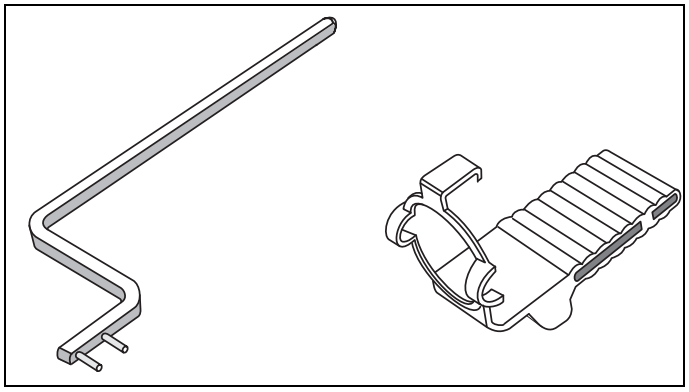
Sensor holder set (5) with sight rings and guide rods for different exposure positions.
REF: 58 58 522

NOTE

The holder set for the right-angle technique is part of the sensor set and is described there in separate operating instructions.

6 Hygiene protection





CAUTION
Use only the hygiene protection sleeves from Sirona.

Before every application on a new patient, the sensor must be provided with a new hygiene protective sleeve.

Do not use the hygiene protection sleeves more than once!

Be careful not to kink the sensor lead when sliding on the hygiene protection!

Use the hygiene protection intended for use with your sensor type.

Hygiene protection for Universal sensor
500 pcs, REF: 58 06 497

Hygiene protection for Full Size sensor
500 pcs, REF: 51 69 110

When the RWT holder set from DENTSPLY RINN is used, the hygiene protection between sensor and holder is provided according to the holder used.

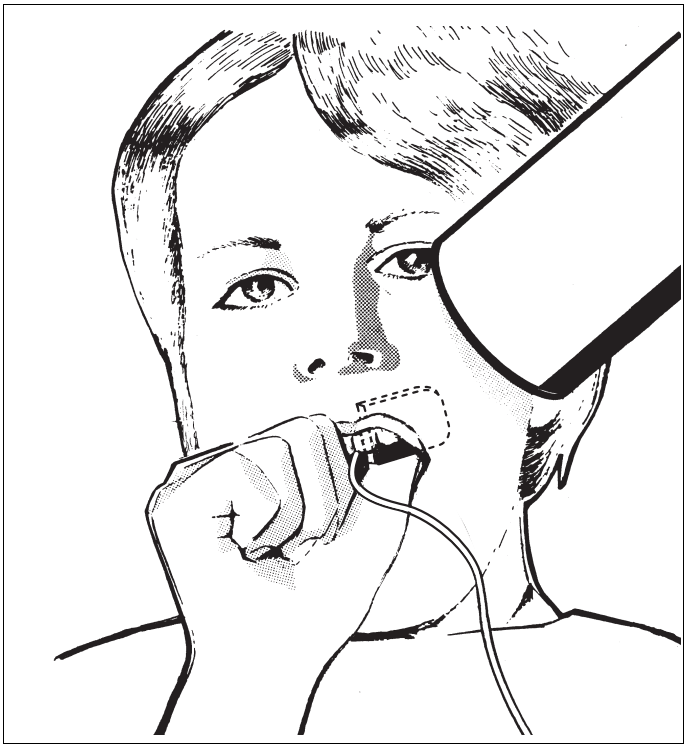
CAUTION
Do not slide the hygiene protection over the entire holder with sensor!

NOTE
Take care that the connection cable from the sensor to the personal computer is led out from the mouth of the patient in such a way that the patient cannot bite into the cable.

With respect to the hygiene of the holder system, observe the instructions from DENTSPLY RINN!

NOTE
Please also make sure to observe the „Care Instruction for SIDEXIS – Intraoral Sensors“ (Part No.: 59 74 329)!

7 Use of the X-ray sensor



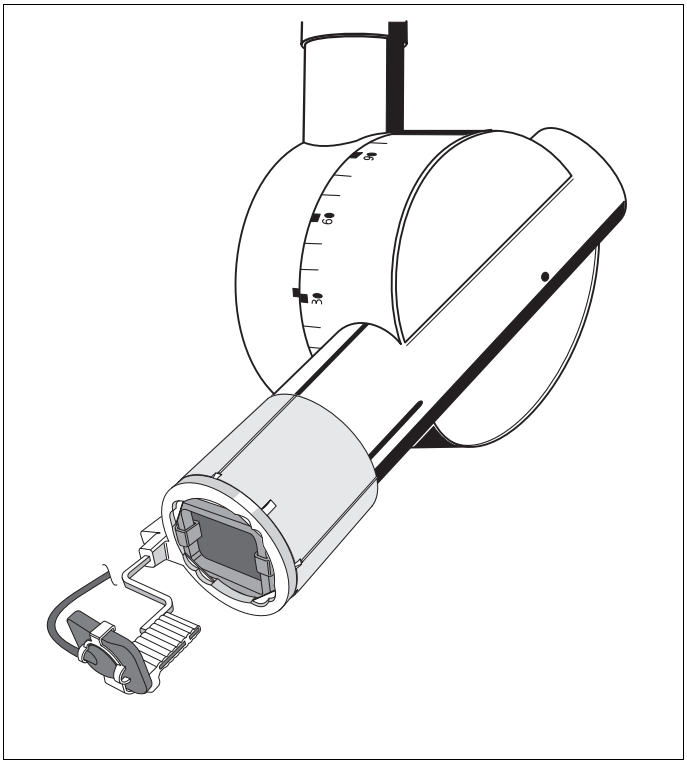
NOTE

The sensors illustrated are representative of all Sirona X-ray sensors.

The X-ray sensor is placed according to the known principles of the half-angle or right-angle technique.

Half-angle technique without collimator!

According to the size of the tooth or position of the area to be exposed, place the X-ray sensor vertically or horizontally into the mouth of the patient. The patient can fix the sensor by independently holding it as usual.



Right-angle technique

For reasons of dose reduction, for the right-angle technique we recommend using the holder system supplied.

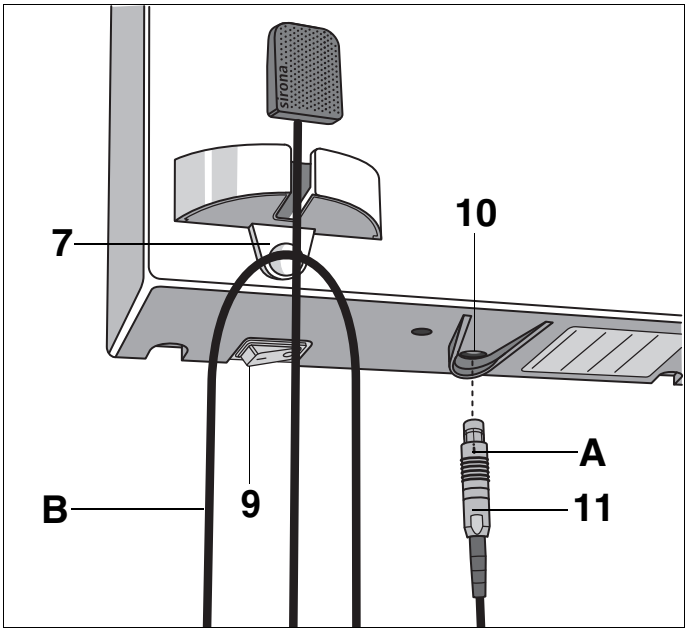
Use of the different sensor holders with guide rods and sight rings with the right-angle technique is described in separate operating instructions from Rinn

NOTE

For reasons of clarity, no hygiene protection is shown in these figures.

8 Preparations for the exposure

8.1 The X-ray sensor



CAUTION

When the highly sensitive X-ray sensor is not in use, always hang it in its holder!

The round plug (11) must be plugged into the socket provided for it (10). The red dot A must point to the front.

The excess length of the sensor cable B can be hooked into the suspension device (7).

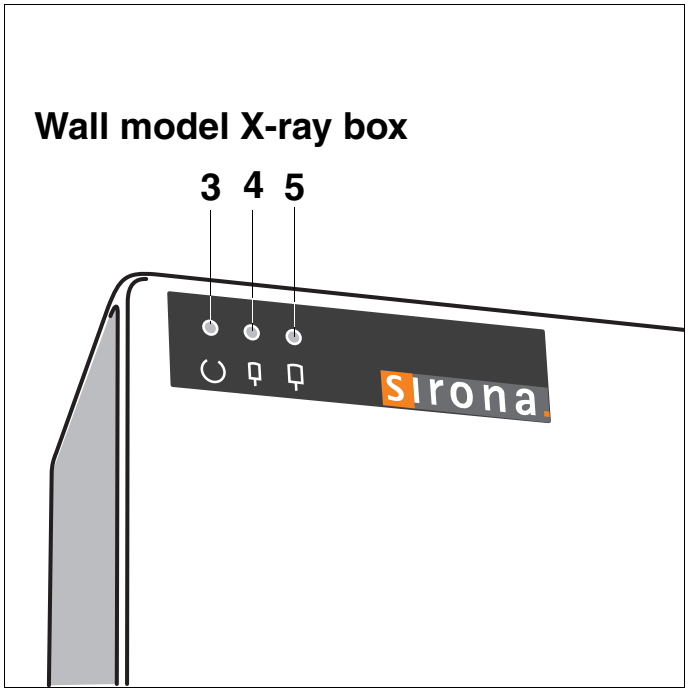
NOTE

Since the plug is connected to the housing, it must be plugged in before placing the sensor.

NOTE

Please also make sure to observe the „Care Instruction for SIDEXIS – Intraoral Sensors“ (Part No.: 59 74 329)!

8.2 Switching the unit on



CAUTION

If an acquisition unit is switched off briefly, a few seconds waiting time are required to completely discharge the internal energy store!

Wall model X-ray box

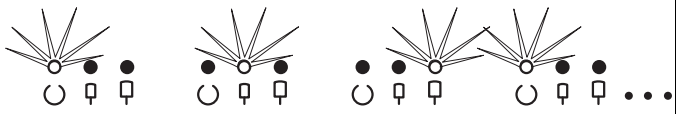
The unit is switched on from the main switch (9) on the bottom of the box.

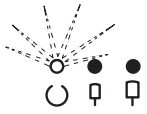
After switching on, an automatic system self-test executes. The three LED
(3)-(4)-(5) signal this by a running light.

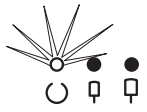
The green signal LED (3) then shows that the unit is ready for operation.

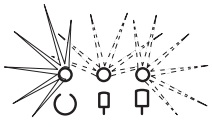
9 System statuses

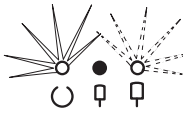
The three signal LEDs serve for indicating the system statuses.



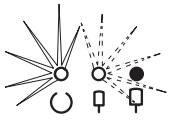








or



The operating messages of the acquisition units are shown below.
Further statuses not shown here represent information for service or maintenance purposes.

1. **Self-test after switching on**
   Running light of the three signal LEDs.

2. **System message**, e. g. network not ready
   The green signal LED flashes.
   A system error has occurred.
   Please call your service technician.

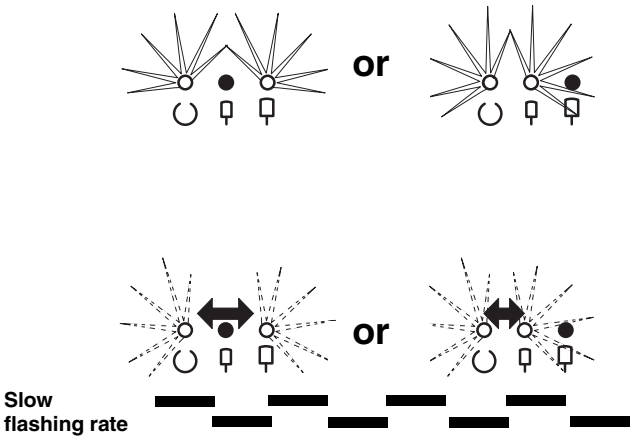
3. **Ready for operation**
   The green signal LED lights up.

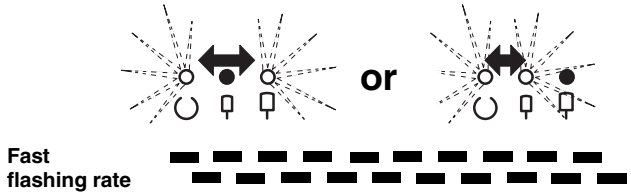
4. Making an exposure:

4.1 No Sensor plugged in
The green signal LED lights up and the two yellow signal LEDs flash simultaneously.

4.2 Sensor plugged in

If the sensor cable is plugged in, only the corresponding signal LED flashes until the system is ready for exposure.





4.3 Ready for exposure with plugged in sensor cable.
The readiness for operation status message is generated on the PC by SIDEXIS.
The green LED lights up together with the yellow signal LED for the corresponding sensor.

4.4 Image transfer to the database
During the transfer process the green signal LED and the yellow signal LED of the corresponding sensor flash slowly alternatingly.

When the image is transferred to the database the unit switches automatically

with preselection of **"Single exposure"** to ready for operation and

with preselection of **"Multiple exposure"** to ready for exposure.

The preselection can be set in SIDEXIS.

NOTE

In the case of disturbances of the data transfer to the PC, the unit switches automatically to a safe mode enabling renewed transfer of the image to SIDEXIS. In case of a lasting fault, the image can be transferred to another PC by the service program (SiRescue).

CAUTION

In this condition the acquisition unit must not be switched off, to prevent the stored image from being deleted.

The green signal LED and the yellow signal LED of the corresponding sensor flash with increasing speed alternatingly.

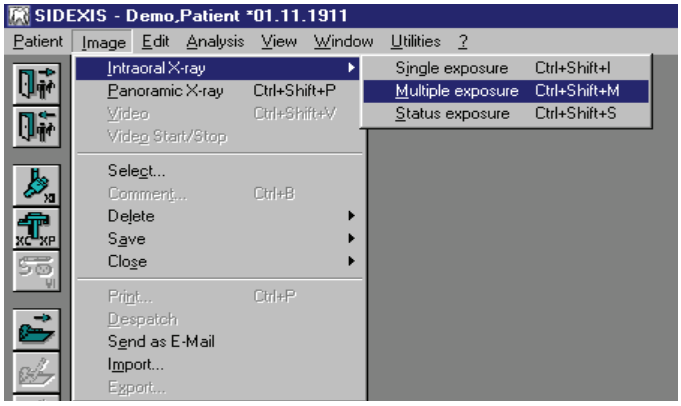
For the operation of the SiRescue service program, please read the corresponding software description in the SIDEXIS User Manual.

10 Making the system ready for exposure

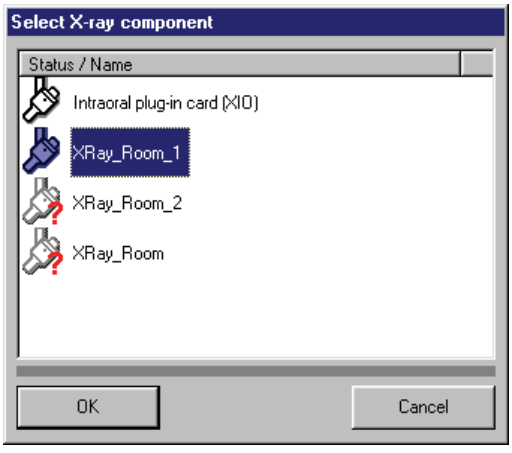
To make the system ready for exposure, SIDEXIS must be called up on the corresponding computer.

You must initially register a patient in the SIDEXIS program.

If you want to make a single exposure, click on the XI button.



To make multiple exposures for the same patient, select the **"Multiple exposure"** subitem in the menu bar.



The **"Select X-ray component"** window then appears.

If several X-ray units or acquisition units are installed in the practice, you must then select the required unit by clicking in the "Status" column, indicated by a blue square.
Acquisition units identified with a question mark are possibly not switched on.

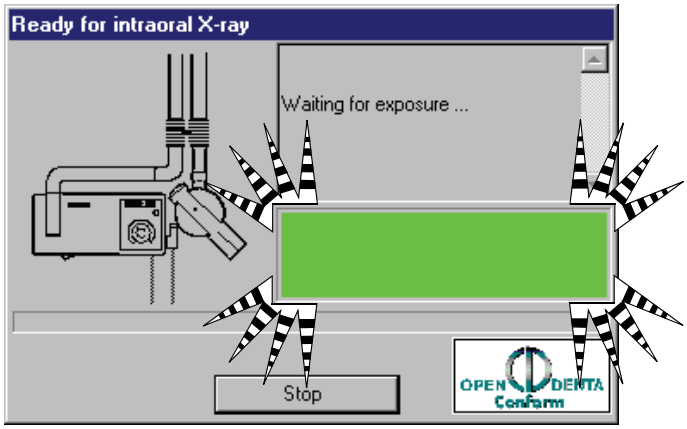
After confirmation the unit is connected.

NOTE

If only one station has been set up, this dialog is skipped.

You will find detailed descriptions of these operating steps in the SIDEXIS User Manual.

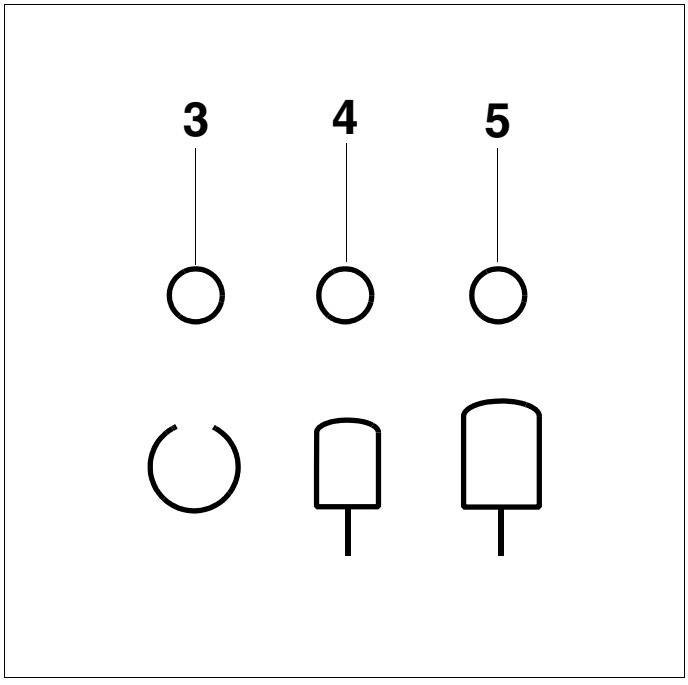
PC screen



Following buildup of the connection the message **"Place the sensor"** is displayed briefly.

After a few seconds the system is ready for the exposure:
The message **"Waiting for exposure ..."** appears in the dialog box.

In addition the green indicator in the window starts to flash.



Readiness for exposure is now signalled on the acquisition unit as well.

The yellow signal LED (4) or (5) assigned to the corresponding sensor lights up in addition to the green signal LED (3).

Assemble the holder combination for right-angle technique intended for the relevant type of exposure according to the Operating Instructions, fit the required hygiene protection and place it with the X-ray tube assembly and the sensor on the patient.

The exposure can now be made with the X-ray tube assembly.

For exposure times refer to Chapter 11 "Exposure values".

If no radiation is released, the unit status changes after 15 minutes from ready for exposure back to ready for operation.

⚠ *CAUTION*

If no readiness dialog appears and the display in the dialog does not flash or the signal LEDs on the acquisition unit do not light up, then no X-ray exposures may be taken on the patient until the cause of this problem is rectified.

After the exposure the LED assigned to the sensor starts to flash alternatingly with the operating indicator LED (3) and the data are transferred.

⚠ *CAUTION*

The unit may not be switched off until the data transfer is completed. This status is shown by the operating indicator LED (3) lighting up continuously.

11 Exposure control, adapting exposure data

11.1 Exposure control

The radiation dose acquired by the X-ray sensor as a result of the exposure data selected affects the image quality.

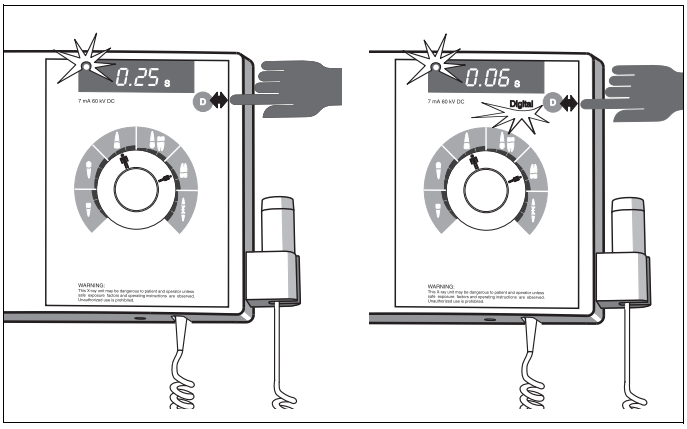
The X-ray sensor accepts a wide exposure tolerance. Thanks to automated image preprocessing, the exposures are displayed with optimized brightness and optimized contrast.

Nevertheless a noisy, unsharp image can result if the dose is too low. – This is in contrast to an excessive dose, which results in overmodulation of the sensor and can thus cause dark fields in the image.

CAUTION

Image artifacts due to excessively low dose can be compressed in part through subsequent image postprocessing. Image artifacts due to overmodulation of the sensor, on the other hand, cannot be compensated for!

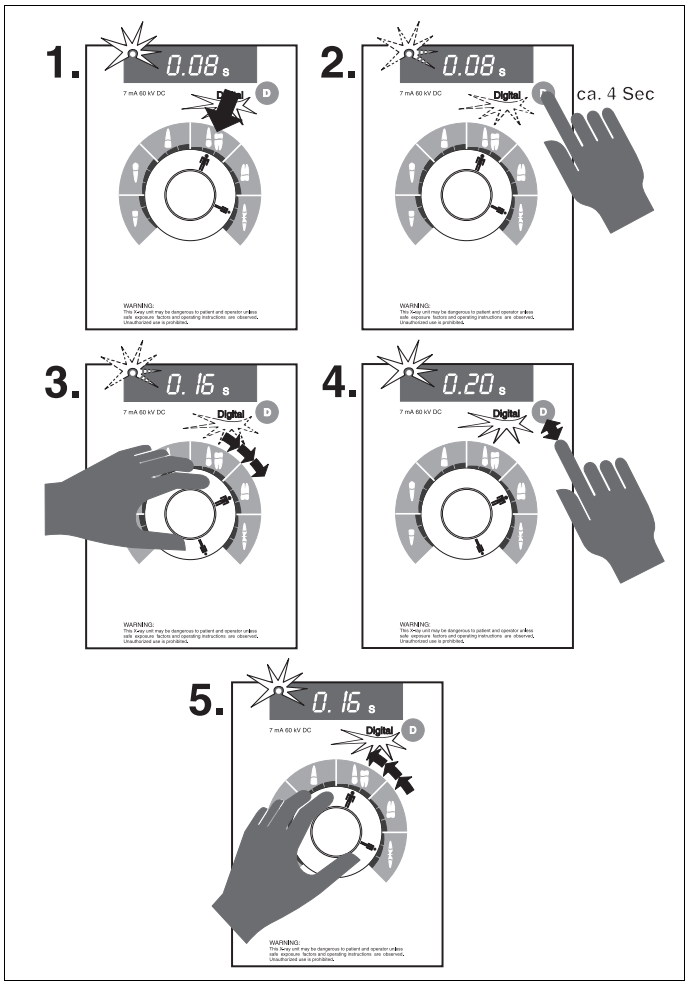
11.2 Adapting exposure data



HELIODENT DS

You can switch over from conventional to digital exposure technique by briefly pressing the **D** key. The reduced
exposure time for this is displayed. The **Digital** indicator must light up.

For the HELIODENT DS exposure values see page 24.



Changing the basic value:

The basic value can be adapted as follows in the event of different exposure conditions:

1. Set the large patient symbol to the middle range (upper jaw premolar/lower jaw molar) of the object selection switch (1).
2. Press the **D** key (approx. 4 sec.), until the ready for operation **LED** and **Digital** flash.
   Let go of the **D** key.
3. The basic value can be
   increased + step by step
   or decreased – by turning the
   object selection switch.
4. Press the **D** key to save the value.
5. Set the object selection switch (5) back to the starting position. The basic value is displayed 3 steps higher.

If you do not want to save the value, do not press the **D** key.
You must then switch the unit OFF and then ON again.

Adjacent example:

Changing the basic value in digital radiography from 8" cone to 12" cone (3 steps higher).

12 Care

Handle the highly sensitive X-ray sensor with its cable carefully!

When cleaning do not pull on the connection cable. Do not kink the cable!

NOTE

Please also make sure to observe the „Care Instruction for SIDEXIS – Intraoral Sensors“ (Part No.: 59 74 329)!

12.1 Cleaning

Remove dirt and disinfectant residue regularly using a mild commercially available cleaning agent.

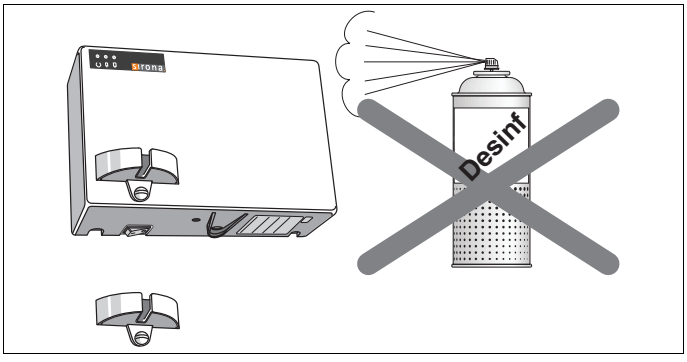
Make sure that no liquids can penetrate through the ventilation slots! Immediately wipe away medicaments from the surface.

Do not use: agents containing phenol, peracetic acid, peroxide and other oxygen-cleaving agents, sodium hypochlorite and iodine-cleaving agents.

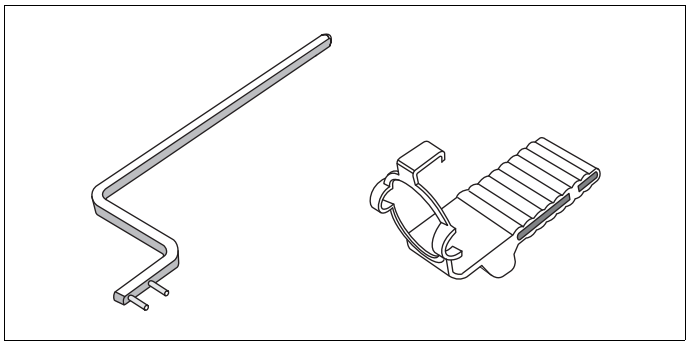
PC and screen

For cleaning the PC and the screen, please refer to the Service Instructions for these components.

12.2 Disinfecting

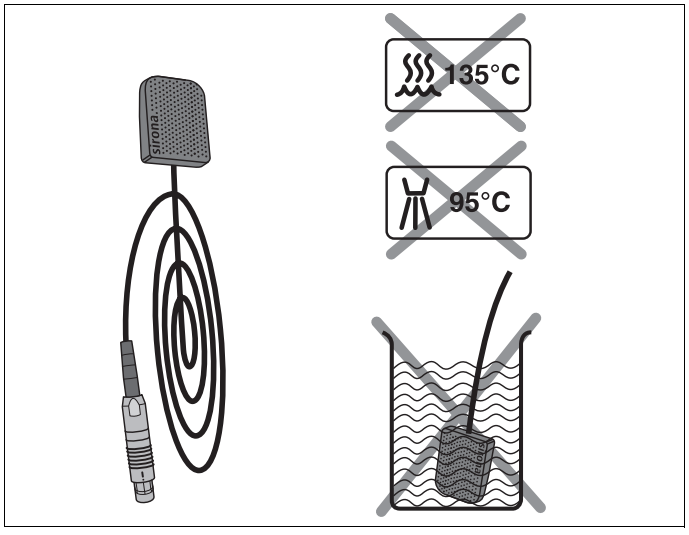


The wall model X-ray box, both sensors and the wall holder for the sensors can be disinfected by wiping.



The sensor holders, sight rings and guide rods can be sterilized.

See the instructions from DENTSPLY RINN!



CAUTION

Do not thermodisinfect the Universal and the Full Size sensors with connection cable, do not immerse them in disinfectant solutions, do not disinfect them with radiation and do not sterilize them!

13 Exposure values

for Sirona Full Size / Universal X-ray sensors

Only a few exposure values are sufficient for the highly sensitive Sirona **Full Size** and **Universal** X-ray sensors. The exposure values for X-ray sensors stated in the relevant documentation of the different Sirona intraoral X-ray units therefore do **not** apply for the Sirona **Full Size** and **Universal** X-ray sensors.

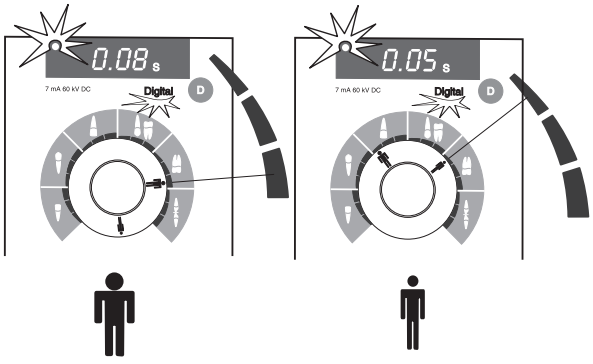
For other X-ray sensors please use the exposure times from their operating instructions.

13.1 HELIODENT DS as from Serial No. 15864 (wall model) and 4416 (ceiling model)

Possible exposure times:

0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.25	0.32	0.40	0.50	0.64	0.80	1.00	1.25	1.60	2.00	2.50	3.20

Recommended exposure times – with 8" SSD cone and Sirona Full Size / Universal X-ray sensor:



The recommended exposure times are limited to the following values from the number of possible exposure times:

0.04	0.05	0.06	0.08

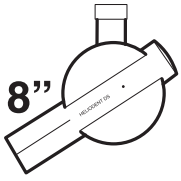
When the desired patient symbol is set to the tooth symbol, the recommended exposure times are assigned automatically.

Each tooth symbol is subdivided into three different exposure levels.
In the case of digital X-ray exposures, make sure to set the largest exposure level within a tooth symbol for X-rays of adults, and the smallest exposure level for X-rays of children.
Only then does the associated value appear on the digital display.

Adjacent example: Upper jaw molar

Valid as from software version 17 (number appears briefly after the unit is switched on)

Classification of the recommended exposure times according to tooth region:

	Lower jaw anterior Lower jaw canine Upper jaw anterior	Upper jaw molars Upper jaw canine / lower jaw molars Occlusal exposure
Adults:	0.06 s	0.08 s
Children:	0.04 s	0.05 s

NOTE

Please check according to exposure region the time setting on the digital time display of the unit before the exposure!

The above exposure times are doubled when a 12" SSD cone and Sirona Full Size / Universal X-ray sensors are used!

13.2 HELIODENT DS up to Serial No. 15863 (wall model) and 4415 (ceiling model)

Possible exposure times:

0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.25	0.32	0.40	0.50	0.64	0.80	1.00	1.25	1.60	2.00	2.50	3.20

Recommended exposure times – with 8" SSD cone and Sirona Full Size / Universal X-ray sensor:

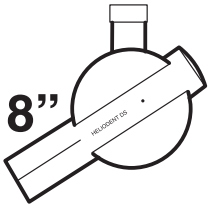
The recommended exposure times are limited to the following values from the number of possible exposure times:

0.04	0.05	0.06	0.08

NOTE

The previous orientation to the tooth symbols for setting the exposure time is no longer valid for these sensors!

Classification of the recommended exposure times according to tooth region:

	Lower jaw anterior Lower jaw canine Upper jaw anterior	Upper jaw molars Upper jaw canine / lower jaw molars Occlusal exposure
Adults:	0.06 s	0.08 s
Children:	0.04 s	0.05 s

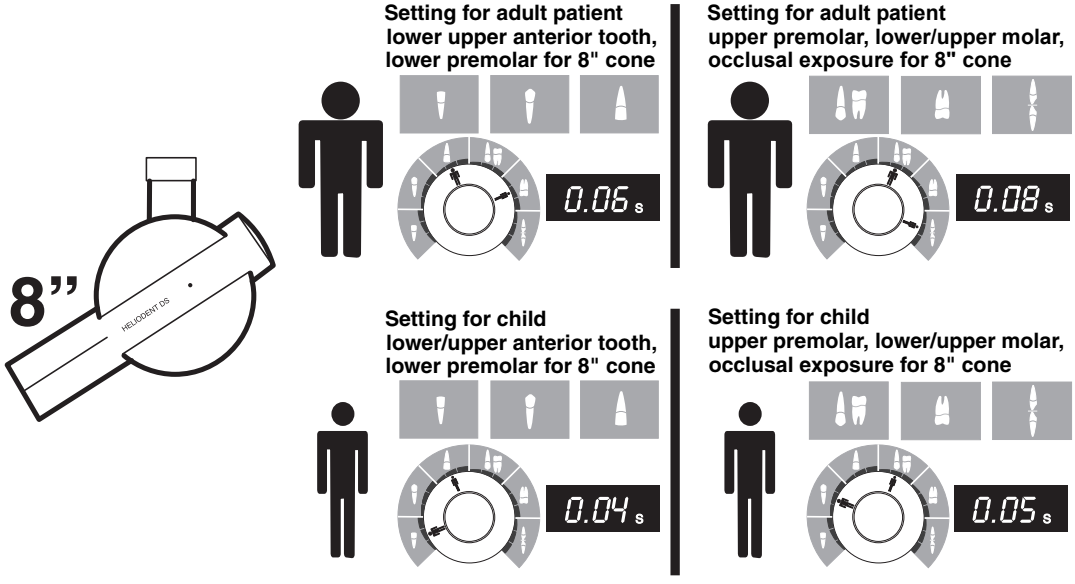
NOTE

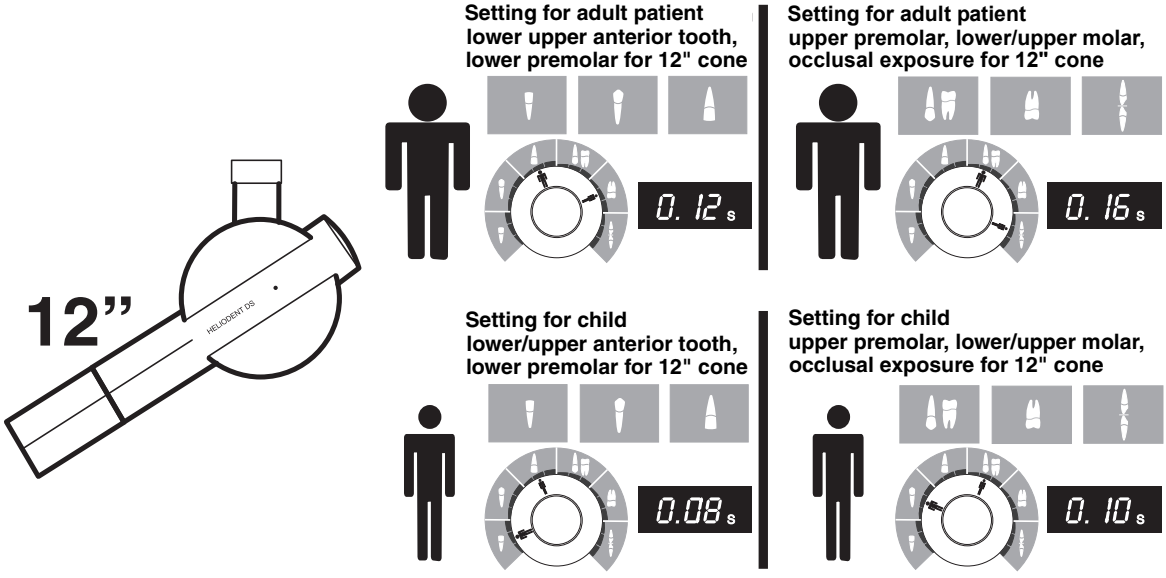
Please check according to exposure region the time setting on the digital time display of the unit before the exposure!

The above exposure times are doubled when a 12" SSD cone and Sirona Full Size / Universal X-ray sensors are used!

Exposure time settings

The following diagrams show as examples the exposure time settings for the Sirona Full Size and Universal X-ray sensors on the HELIODENT DS up to Serial No. 15863 (wall model) and 4415 (ceiling model)





13.3 HELIODENT *Vario*

Possible exposure times:

0.03	0.05	0.07	0.09	0.11	0.13	0.17	0.20	0.25	0.32	0.40	0.50	0.63	0.80	1.00	1.25	1.60	2.00	2.50	3.20

Recommended exposure times – with 8" SSD cone and Sirona Full Size / Universal X-ray sensor:

The recommended exposure times are limited to the following values from the number of possible exposure times:

0.05	0.07	0.09	0.11

Classification of the recommended exposure times according to tooth region:

	Lower jaw anterior	Lower jaw canine	Upper jaw anterior	Upper jaw canine / lower jaw molars	Upper jaw molars
Adults:	0.07 s	0.07 s	0.07 s	0.09 s	0.11 s
Children:	0.05 s	0.05 s	0.07 s	0.07 s	0.09 s

NOTE

Please check according to exposure region the time setting on the digital time display of the unit before the exposure!

When a 12" SSD cone and Sirona Full Size / Universal X-ray sensor is used, the above exposure times are increased by 2 exposure levels!

Example: 0.05 s → 0.09 s or 0.11 s → 0.17 s

13.4 HELIODENT MD

Possible exposure times:

0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.25	0.32	0.40	0.50	0.64	0.80	1.00	1.25	1.60	2.00	2.50	3.20

Recommended exposure times – with 8" SSD cone and Sirona Full Size / Universal X-ray sensor:

The recommended exposure times are limited to the following values from the number of possible exposure times:

0.03	0.04	0.05	0.06

CAUTION

The previous orientation to the tooth symbols for setting the exposure time is no longer valid for these sensors!

Classification of the recommended exposure times according to tooth region:

	Lower jaw anterior Lower jaw canine Upper jaw anterior	Upper jaw molars Lower jaw molars Upper jaw canine Occlusal exposure
Adults:	60 kV 0,05 s 70 kV 0,04 s	60 kV 0,06 s 70 kV 0,05 s
Children:	60 kV 0,04 s 70 kV 0,03 s	60 kV 0,05 s 70 kV 0,04 s

NOTE

Please check according to exposure region the time setting on the digital time display of the unit before the exposure!

The above exposure times are doubled when a 12" SSD cone and Sirona Full Size / Universal X-ray sensors are used!

13.5 HELIODENT 70 (not USA version!)

Recommended exposure times – with 8" SSD cone and Sirona Full Size / Universal X-ray sensor:

The recommended exposure times are limited to the following values from the number of possible exposure times:

0.08	0.10	0.12

CAUTION

The previous orientation to the tooth symbols for setting the exposure time is no longer valid for these sensors!

Classification of the recommended exposure times according to tooth region:

	Lower jaw anterior Lower jaw canine Upper jaw anterior	Upper jaw molars Lower jaw molars Upper jaw canine Occlusal exposure
Adults:	0,10 s	0,12 s
Children:	0,08 s	0,10 s

NOTE

Please check according to exposure region the time setting on the digital time display of the unit before the exposure!
The exposure time is displayed by the orange mark on the dial.

The above exposure times are doubled when a 12" SSD cone and Sirona Full Size / Universal X-ray sensors are used!

We reserve the right to make any alterations which may be due to technical improvements.

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